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DEPARTMENT OF NATURAL RESOURCES  
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October 15, 2001

TO: Internal File

THRU: Priscilla W. Burton, Reclamation Soil Specialist & Team Lead <sup>B</sup>

FROM: Gregg A. Galecki, Reclamation Hydrologist <sup>AGH</sup>

RE: Surface Mining of Barrier Coal, Loadstar Energy, Inc., White Oak Mine,  
C/007/001-SR01A-1

SUMMARY:

On February 2, 2001, the Division received an application for a Significant Revision of the Mining and Reclamation Plan at the White Oak Complex to include Surface mining of barrier coal. Mining would occur in areas that are currently disturbed but also extend into areas that are not now disturbed but which are in within the disturbed area boundary. An Administrative Completeness Review (ACR) determined some deficiencies existed, but the proposed amendment was considered administratively complete on March 19, 2001, based on the applicants' commitment to provide the requested information.

The proposal was returned to Lodestar Energy, Inc. with deficiencies and requesting additional information on July 13, 2001. Lodestar Energy, Inc. submitted additional information on September 10, 2001. The following technical review evaluates the application from a geologic and hydrologic prospective. The current application does not meet the requirements of the State regulations. In addition to the information requested during the ACR review, other deficiencies were observed.

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## **TECHNICAL ANALYSIS:**

### **PERMIT APPLICATION FORMAT AND CONTENTS**

Regulatory Reference: 30 CFR 777.11; R645-301-120.

#### **Analysis:**

The proposal contains no cited examples where the current MRP needs to be changed for accuracy and completeness based on the proposed Significant Revision.

#### **Findings:**

Information in the application adequately addresses the requirements of the Permit Application Format and Contents section of the regulations.

## **ENVIRONMENTAL RESOURCE INFORMATION**

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

### **ALLUVIAL VALLEY FLOORS**

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

#### **Applicability of Statutory Exclusions**

A statutory exclusion is applicable in the proposed Significant Revision because the affected alluvial valley is undeveloped rangeland, and no farming exists in the area. The statutory exclusion is based on State Regulations R645-302-324.221 and -324.222.

#### **Findings:**

Information in the application adequately addresses the requirements of the Alluvial Valley Floor section of the regulations.

## **GEOLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

**Analysis:**

As outlined in R645-301-622, the application includes cross sections, maps and plans showing the nature, depth, and thickness of coal seams to be mined, each stratum of the overburden, and the stratum immediately below the lowest coal seam to be mined.

Sections 624.200 through 624.320 have been revised to reflect surface mining activities. Appendix 6-1 (Summary of Results on Toxicity Tests for Barrier Coal Test Hole BCC-1) provides sufficient chemical analysis to determine all potentially acid- or toxic-forming, or alkalinity producing strata down to and including the stratum immediately below the coal seam to be mined.

**Findings:**

Information in the application is adequate to meet the requirements of the Geologic Resource Information section of the regulations.

**HYDROLOGIC RESOURCE INFORMATION**

Regulatory Reference: 30 CFR Sec. 701.5, 784.14; R645-100-200, -301-724.

**Analysis:**

**Surface Water Information**

No additional surface water information is necessary for the proposed significant revision since the majority of the activity is within the disturbed area boundary. Surface water sampling site VC-4, was moved due to the disturbance. This required adjustments to other sections of the MRP outlined below.

**Alternative Water Source Information**

The applicant anticipates that the proposed surface coal mining and reclamation activity will not result in contamination, diminution, or interruption of a surface water source.

*Probable Hydrologic Consequences Determination*

The applicant addressed the probable hydrologic consequences of the surface mining in the area and has determined there will be no detrimental impact to hydrologic regime. Minimal impact to water quality was supported through Appendix 6-1 (Summary of Results of Toxicity Tests) which determined the over-burden, inter-burden, and under-burden have a high net neutralizing potential, suggesting very little probability for acid or toxic mine drainage.

The applicant anticipates minimal long-term affects to the water quantity delivery. It is anticipated surface mining operation will disrupt the water flow through the area during the mining and reclamation of the site. The water flows will report to sedimentation ponds before reporting to Whiskey Creek. The springs and seeps in the area of the surface disturbance will also be disrupted for a period of time during the operation and reclamation. This water is anticipated to potentially surface at a lower elevation or at the toe of the reclaimed slope before entering Whiskey Creek.

**Findings:**

Information in the application is adequate to meet the requirements of the Hydrologic Resource Information section of the regulations.

**MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION**

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

**Analysis:**

The Belina Sediment Control Facilities map (R645-301-731.720d) needs to illustrate a spillway/discharge point from Pond D-1. Also on the Belina Sediment Control Facilities map, Stream Sample VC-4 is mis-labelled as VC-1, which also needs to be corrected.

**Monitoring Sampling Location Maps**

Surface sample VC-4 will be eliminated or moved because it will be located within the proposed disturbed area, and no longer represent undisturbed flow within Whiskey Creek. Sample site VC-4 was moved approximately 280-ft upstream which is not noticeable significant change on Map R645-301-722.100a (Ground and Surface Water Sampling Locations) due to the 1:24,000 scale. The change in site location for VC-4 is noted on Map R645-301-731.720d (Belina Sedimentation Control Facilities).

**Findings:**

Information in the application is not adequate to meet the requirements of the Maps, Plans, and Cross Sections of Resource Information section of the regulations. The following items need to be addressed:

**R645-301-722,-731**, Provide the necessary changes to the Belina Sediment Control Facilities Map (R645-301-731.720d) as cited; illustrate spillway for Pond D-1, correctly identify Stream Sample VC-4.

# OPERATION PLAN

## ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: 30 CFR Sec. 784.24, 817.150, 817.151; R645-301-521, -301-527, -301-534, -301-732.

### Analysis:

#### Plans and Drawings

The Spoils Backfill & Reclamation Details Sheet A illustrates current facilities and contours. The Spoils Backfill & Reclamation Details Sheet B illustrates the proposed contours, contours and remaining facilities upon the completion of the surface mining.

### Findings:

Information in the application is adequate to meet the requirements of the Road System and Other Transportation Facilities section of the regulations.

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### Analysis:

#### *Surface-Water Monitoring*

With the proposed alteration of Whiskey Creek, Surface Sample VC-4 will no longer be a viable site since it will now be included in the disturbed area. The site will be moved approximately 280-ft upstream to accommodate moving of the undisturbed area boundary.

#### *Acid and toxic-forming materials*

With the use of data collected from the characterization of the overburden and underlying units the applicant has demonstrated that no acid and toxic-forming materials are likely to be encountered.

### *Discharges*

French drains are not being required installation at the Mine portals. The Division is allowing the potential for discharges into the mine workings based on the following criteria: Personnel safety is not an issue because the underground workings are abandoned; water quality and effluent limitations are negated based on the lack of toxic or acid-forming materials in the geology; and water quantity is mitigated by the commitment from the Operator to construct a french drain for any encountered flow from the headwall greater than 2 gpm. No significant/measurable flows from seeps or springs are anticipated.

### *Stream Buffer Zones*

A complete alteration/disruption of the upper reaches of Whiskey Creek will take place during the proposed Surface mining operation. Approximately 700-ft of Whiskey Creek, not previously disturbed will be rebuilt during the proposed revision. Flow encountered during surface mining will report directly into the pit and flow into Pond D-1 prior to being discharged into Whiskey Creek. Detailed cross sections of Pond D-1 and maps of the drainage basin design were provided to demonstrate the proposed design will handle anticipated storm events. Portions of the stream proposed for alteration under the proposed plan incorporates 'the best technology currently available (BTCA)'. The BTCA recommends the use of bioengineering, drop structures, and natural stream channel design concepts which eliminates the use of riprap channels. The same channel design is suggested as an alternative to the currently accepted channel design.

### *Sediment Control Measures*

Ditches diverting undisturbed drainage around the disturbed area do not exist in the area of the proposed surface mining. Undisturbed drainage is allowed to flow through the disturbed area and report to the Sedimentation Ponds prior to being discharged into Whiskey Creek. Additional Pond storage has been designed to accomodate the additional flow.

### *Diversions*

With the elimination of undisturbed area ditches diverting undisturbed drainage away from the disturbed area, ditches D-1001 through D-1004, and culverts C-1005 and C-1006 needed to be created or redesigned. Tables 742.310a, 742.310b and Appendix R645-301-742.310(SED CAD 4.0 calculations)adequately addresses the proposed changes. Undisturbed ditches that currently exist which will be eliminated as surface mining progresses were also addressed.

### **Sedimentation ponds**

Due to the elimination of undisturbed drainage ditches, the storage capacity of Pond 004A was re-evaluated and Pond D-1 was created. Table 742.221a reflects that these ponds were designed based on a 10-year, 24-hour storm event, compared with the previous ponds which were based on a 25-year, 24-hour storm event.

Map R645-301-742-310B illustrates the acreages and weighted curve numbers used to create Tables 742.221b, and 742.221c. Appendix R645-301-742.310(SED CAD 4.0 calculations) contains the data used to demonstrate the ponds have the necessary capacity for the designed flow event. The assigned weighted curve number for Area 4, as illustrated in Map R645-301-742-310B (and respective tables) appears too low (60) considering approximately 35 percent of zone is within the current surface facilities area (90).

#### Findings:

Information in the application does not adequately address the requirements of the Hydrologic Information section of the regulations. The following items need to be addressed:

**R645-301-742.221**, On Map 742-310B and respective tables, adjust the weighted curve number used in Zone 4 to reflect the current surface facilities area.

**R645-301-742.221**, Provide Figure 731.750h - Dugout Pond D-1 Stage-Capacity Curves as stated on page 700-70 of 107.

## RECLAMATION PLAN

### GENERAL REQUIREMENTS

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

### BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

#### Analysis:

##### General

Reclaimed slopes are designed as a generally 2:1 slope. The Operator does not propose the use of cut-and-fill terraces in conjunction with the Reclamation Plan. However, as part of reclamation, benches and grade breaks will be incorporated into surface contouring for the purpose of enhancing vegetation and wildlife habitat.

**Findings:**

Information in the application is adequate to meet the requirements of the General Backfilling and Grading section of the regulations.

**HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

**Analysis:****General**

Within the current proposal a completely new Stream Alteration Plan has been submitted. The proposed Stream Restoration Plan incorporates 'BTCA' with the use of bioengineering, drop structures, and natural stream channel design concepts, and limits the use of riprap channels. The same channel design is suggested as an alternative to the currently accepted channel design.

The operator has committed a significant amount of time to characterize Whiskey Creek as it currently exists in the area of the proposed surface mining. Generally, the current stream channel ranges in percent-grade from 9-27% with a majority of the stream averaging approximately 15% grade, and one 50-foot section at 37% grade. The proposed Stream Restoration Plan calls for slopes to range from 5-35% grade with a 175-foot section at 35% grade. Positive aspects of the plan include 175-foot and 150-foot sections at 5% and 14% grade, respectively, which promote riparian areas, and a 19% grade slope at the disturbed/undisturbed contact. The lessening of slope at the disturbed/undisturbed contact should minimize formation of a niche-point/erosional feature at the head of the re-built stream channel.

A major source of concern is the 175-foot, 35 percent-grade section (Section 2A). A slope that long and steep does not currently exist in the channel and was not sufficiently characterized. An ideal solution would be to extend the section over a longer distance and reduce the slope. Unfortunately, a loss of material due to mining of the coal does not make this feasible. On the proposed channel, Section 2A needs more detail on the design; specifically, the size of rock that is going to be used to armour/stabilize the stream bed. The lengthening of the 35%-grade slope from 50-feet to 175-feet increases the velocity and erosional power of the stream significantly.

Although the current stream has been characterized adequately, additional detail needs to be incorporated into the proposed redesigned channel. A stream profile that illustrates the

undisturbed stream, the highwall, the amount of fill, and connection back to the undisturbed stream channel needs to be included.

There is an abundance of empirical data classifying the current stream, but no supportive theoretical data supporting the design. Supportive calculations, using standard engineering principles, needs to be included to demonstrate the proposed design (primarily in Section 2A) will handle the prescribed 10-year, 24-hour storm event.

Pages SRP-15 through SRP-16 describe in detail what is going to be installed in the reclamation of WHiskey Creek, but it does not describe how it is going to take place. Provide information describing where the material to construct the channel is coming from; discuss the armouring/bedding of the channel and how it is going to be constructed; discuss how the banks of the channel are going to be stabilized; if diagrams from DWR Stream Alteration Permit are used, reference them. A narrative commitment to the use of native stream channel sediments and clays, their respective volumes and original location, needs to be stated.

### **Findings:**

Information in the application does not adequately address the requirements of the Reclamation Plan Hydrologic Information section of the regulations. The following items need to be addressed:

**R645-301-731.760**, provide a stream profile illustrating the undisturbed stream, the highwall, the amount of fill, and connection back to the undisturbed stream channel.

**R645-301-742.322**, provide calculations demonstrating the designed capacity of the reclaimed stream channel will be at least equal to the capacity of the unmodified stream channel.

**R645-301-731.611**, provide detailed information on the materials to be used in the reclamation of Whiskey Creek. Specifically, the use, volumes, and location of native stream channel sediments and clay.

### **CONTEMPORANEOUS RECLAMATION**

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

### **Analysis:**

#### **General**

Per the State regulations concerning disposal of Excess Spoils and the installation of under-drains, the applicant has committed to install french drains for any seeps or springs encountered in the headwall in excess of 2 gpm. This is employed to ensure any significant water will flow away from the portals/headwall and drain towards the Whiskey Creek drainage.

**Findings:**

Information in the application is adequate to meet the requirements of the Contemporaneous Reclamation section of the regulations.

**RECOMMENDATION:**

The amendment cannot be accepted in its present form.